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Update: Human Immunodeficiency Virus, Type 1 (HIV-1), Antibody Screening Among Active and Reserve Component Soldiers and Civilian Applicants for Military Service, 1985-June 2004

Since October 1985, all civilian applicants for U.S. military service have been screened for antibodies to human immunodeficiency virus, type 1 (HIV-1) during preinduction medical examinations at Military Entrance Processing Stations (MEPS). Since 1986, all members of the active and reserve components of the U.S. Armed Forces have been periodically screened for antibodies to HIV-1. This report summarizes prevalences and trends of new diagnoses of HIV-1 infection among civilian applicants for military service and among routinely screened soldiers in active and reserve components of the US Army.

Methods. For active, Reserve, and National Guard soldiers, new diagnoses of HIV-1 infections were summarized based on the earliest positive (confirmed) antibody test results of individuals who were listed with identical information on relevant personnel files. For calendar year-specific seroprevalence calculations, denominators were the numbers of

soldiers in each component who were tested at least once during each calendar year. Annual HIV-1 infection prevalences among civilian applicants for service were calculated by dividing the number of applicants with first positive (confirmed) antibody test results each calendar year by the number of applicants tested during each year.

Army, active component. From January 2003 through June 2004, 84 soldiers (80 males, 4 females) were diagnosed with HIV-1 infections during routine screening. During 2003, the overall prevalence of antibodies to HIV-1 among screened soldiers (0.17 per 1000 tested) was remarkably similar to the prevalences during the prior four years (table S1). Of the 2,838 active component soldiers diagnosed with HIV-1 infections since routine testing began in 1986, 325 (11.5%) remain on active duty (table S1).

Army Reserve. From January 2003 through June 2004, 59 soldiers (59 males, 0 females) of the U.S. Army

Figure 1. Rates of new diagnoses of HIV-1 infections, by gender, Army active duty, 1994-2004.



Reserve were diagnosed with HIV-1 infections during routine screening. During 2003, the overall prevalence of antibodies to HIV-1 among screened Reservists (0.43 per 1000) was remarkably similar to the prevalences during the prior two years (table S2). There were no new diagnoses of HIV-1 infections among females who were screened; however, the prevalence of antibodies among males (0.56 per 1000) was higher than in any year since 1991 (table S2, figure 2).

Army National Guard. From January 2003 through June 2004, 40 soldiers (37 males, 3 females) of the Army National Guard were diagnosed with HIV-1 infections during routine screening. During 2003, the overall prevalence of antibodies to HIV-1 among screened National Guard soldiers (0.17 per 1000) was

the lowest annual prevalence since routine screening began (table S3).

Civilian applicants for US military service. Since October 1985, 4,863 civilian applicants for military service have been diagnosed with HIV-1 infections during preinduction medical examinations. From January 2003 to June 2004, 131 applicants (112 males, 19 females) were diagnosed with HIV-1 infections. The overall prevalence (0.28 per 1000 tested) of antibodies to HIV-1 in 2003 continued a trend of remarkable stability that began in 1996 (table S-4). Seroprevalences in gender and race/ethnicity-defined subgroups have been remarkably stable since 1996 (tables S-4,5; figures S-4,5).

Data summaries provided by Vince P. Desborough, Army Medical Surveillance Activity.

Table 1. New diagnoses of HIV-1 infections, by gender, Army active duty, 1985/86-June 2004

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total new HIV-1 positive	New HIV-1 positive males	New HIV-1 positive females	Overall rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested	HIV-1 (+) soldiers on active duty, by year of first (+)
1985/86	387,419	362,697	324,385	38,312	940	894	46	2.59	2.76	1.20	5
1987	456,074	346,317	310,864	35,453	394	379	15	1.14	1.22	0.42	0
1988	426,082	363,471	319,389	44,082	192	186	6	0.53	0.58	0.14	1
1989	458,962	381,340	335,058	46,282	167	161	6	0.44	0.48	0.13	3
1990	509,212	421,710	368,529	53,181	155	146	9	0.37	0.40	0.17	7
1991	456,060	381,207	333,404	47,803	132	126	6	0.35	0.38	0.13	6
1992	518,072	420,023	367,683	52,340	121	113	8	0.29	0.31	0.15	14
1993	455,691	368,530	319,868	48,662	91	88	3	0.25	0.28	0.06	9
1994	419,472	342,706	295,375	47,331	80	75	5	0.23	0.25	0.11	11
1995	463,432	339,505	292,045	47,460	78	73	5	0.23	0.25	0.11	20
1996	405,199	307,335	261,576	45,759	67	62	5	0.22	0.24	0.11	18
1997	400,978	298,925	252,443	46,482	64	57	7	0.21	0.23	0.15	21
1998	380,171	300,848	252,772	48,076	62	54	8	0.21	0.21	0.17	21
1999	356,855	288,524	242,376	46,148	52	49	3	0.18	0.20	0.07	19
2000	369,190	287,737	240,941	46,796	44	37	7	0.15	0.15	0.15	23
2001	399,989	311,362	261,509	49,853	60	57	3	0.19	0.22	0.06	33
2002	417,965	330,654	277,878	52,776	55	53	2	0.17	0.19	0.04	40
2003	493,371	362,448	305,647	56,801	60	56	4	0.17	0.18	0.07	50
2004*	265,165	238,532	204,239	34,293	24	24	0	0.10	0.12	0.00	24
Total	8,039,359	6,453,871	5,565,981	887,890	2,838	2,690	148				325

* current as of 30 June 2004.

Table 2. New diagnoses of HIV-1 infections, by gender, Army Reserve (AR), 1985/86-June 2004

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total new HIV-1 positive	New HIV-1 positive males	New HIV-1 positive females	Overall rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested	HIV-1 (+) soldiers in USAR, by year of first (+)
1985/86	7,591	7,377	6,294	1,083	9	8	1	1.22	1.27	0.92	0
1987	157,226	146,696	119,854	26,842	34	32	2	0.23	0.27	0.07	1
1988	89,966	85,367	68,917	16,450	76	74	2	0.89	1.07	0.12	2
1989	167,229	153,838	124,001	29,837	75	70	5	0.49	0.56	0.17	0
1990	175,752	153,403	122,473	30,930	74	71	3	0.48	0.58	0.10	0
1991	123,204	112,093	89,416	22,677	61	59	2	0.54	0.66	0.09	0
1992	183,745	161,169	128,437	32,732	64	53	11	0.40	0.41	0.34	1
1993	146,571	130,320	104,037	26,283	41	37	4	0.31	0.36	0.15	2
1994	136,726	122,833	96,808	26,025	27	22	5	0.22	0.23	0.19	1
1995	105,438	95,661	75,381	20,280	28	22	6	0.29	0.29	0.30	2
1996	51,995	48,107	37,506	10,601	13	13	0	0.27	0.35	0.00	3
1997	44,992	41,889	31,846	10,043	14	12	2	0.33	0.38	0.20	4
1998	37,336	35,739	27,195	8,544	11	10	1	0.31	0.37	0.12	2
1999	41,411	38,391	29,129	9,262	16	12	4	0.42	0.41	0.43	5
2000	38,844	35,730	26,831	8,899	8	5	3	0.22	0.19	0.34	4
2001	54,826	49,927	37,838	12,089	22	18	4	0.44	0.48	0.33	13
2002	62,693	56,446	43,775	12,671	23	17	6	0.41	0.39	0.47	17
2003	156,761	112,684	87,881	24,803	49	49	0	0.43	0.56	0.00	41
2004*	65,587	60,686	47,683	13,003	10	10	0	0.16	0.21	0.00	10
Total	1,847,893	1,648,356	1,305,302	343,054	655	594	61				108

* current as of 30 June 2004

Figure 2. Rates of new diagnoses of HIV-1 infections, by gender, Army Reserve, 1994-2004.

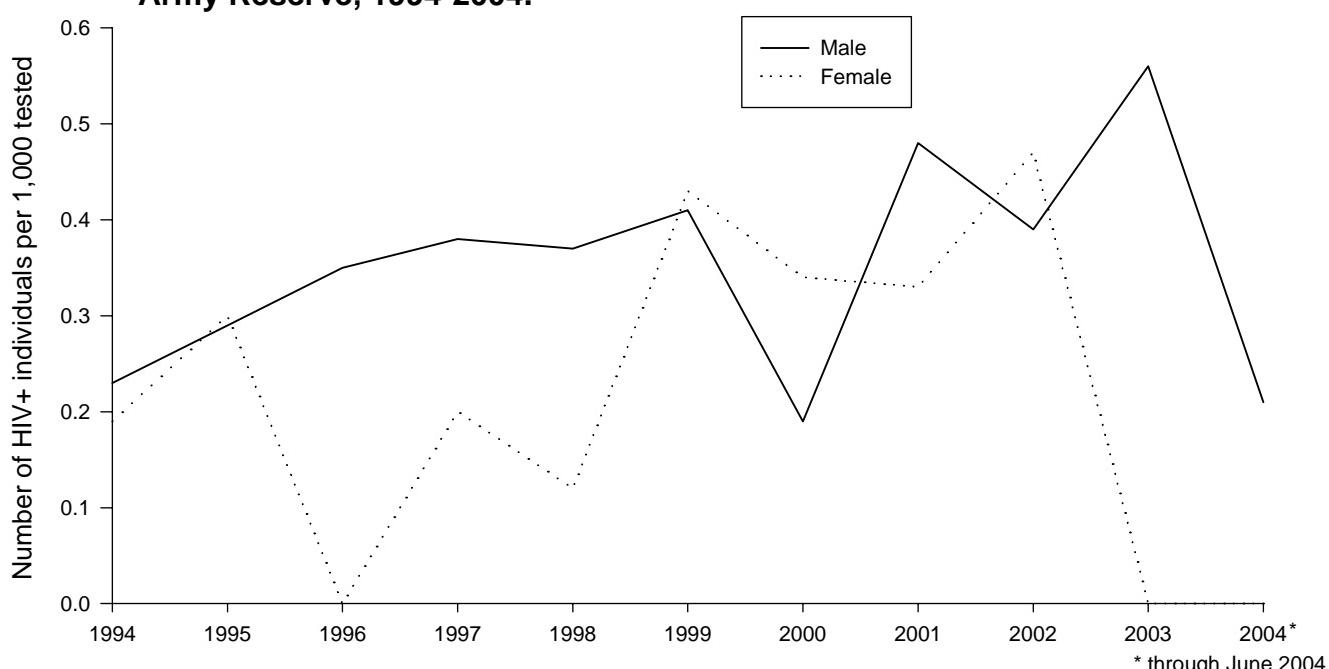
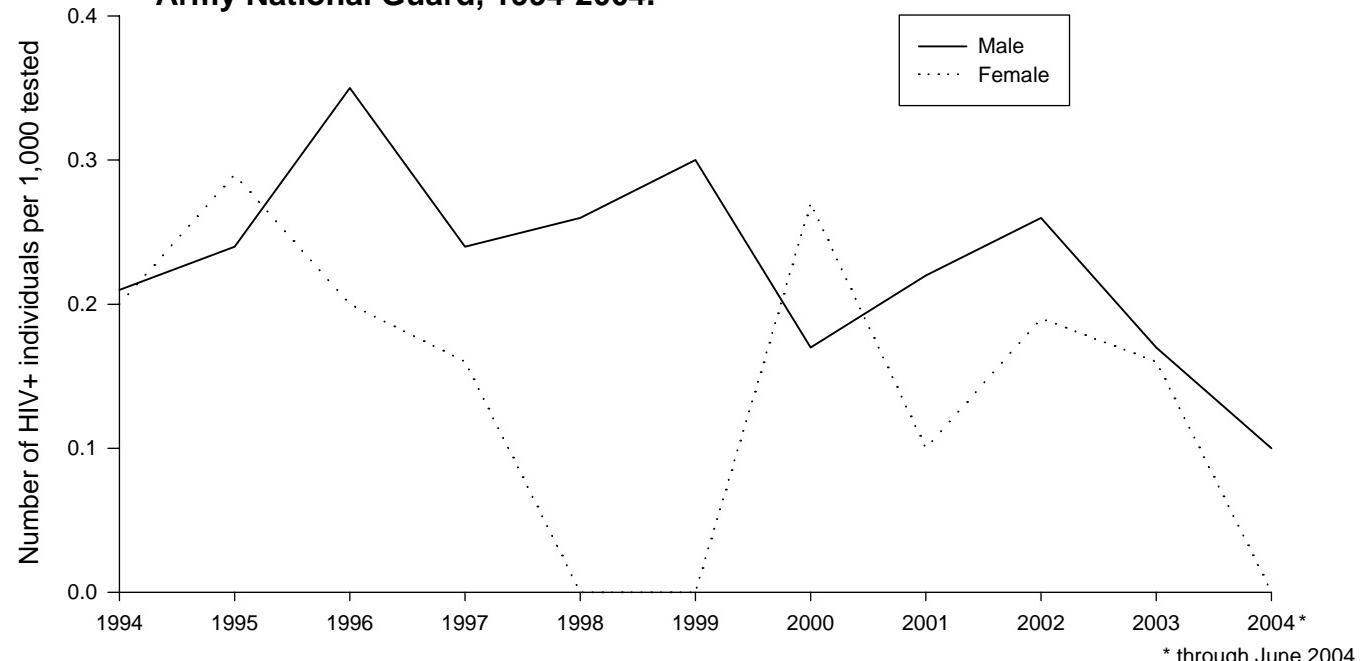


Table 3. New diagnoses of HIV-1 infections, by gender, US Army National Guard, 1985/86 - June 2004

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total new HIV-1 positive	New HIV-1 positive males	New HIV-1 positive females	Overall rate per 1000 tested	Male rate per 1000 tested	Female rate per 1000 tested	HIV-1 (+) soldiers in NG, by year of first (+)
1985/86	99,216	97,980	92,865	5,115	31	29	2	0.32	0.31	0.39	1
1987	234,284	225,816	214,102	11,714	37	36	1	0.16	0.17	0.09	0
1988	157,781	152,349	143,443	8,906	44	40	4	0.29	0.28	0.45	1
1989	189,220	181,489	170,799	10,690	71	69	2	0.39	0.40	0.19	1
1990	230,175	213,518	198,429	15,089	65	63	2	0.30	0.32	0.13	0
1991	191,011	178,348	166,594	11,754	57	53	4	0.32	0.32	0.34	2
1992	252,427	236,743	219,359	17,384	57	55	2	0.24	0.25	0.12	0
1993	167,723	158,700	146,991	11,709	36	35	1	0.23	0.24	0.09	1
1994	199,128	186,327	171,656	14,671	39	36	3	0.21	0.21	0.20	4
1995	146,885	140,183	129,849	10,334	34	31	3	0.24	0.24	0.29	5
1996	62,028	58,892	54,007	4,885	20	19	1	0.34	0.35	0.20	0
1997	71,028	67,788	61,411	6,377	16	15	1	0.24	0.24	0.16	3
1998	78,432	75,195	68,161	7,034	18	18	0	0.24	0.26	0.00	2
1999	86,058	81,223	73,416	7,807	22	22	0	0.27	0.30	0.00	6
2000	76,147	72,377	64,868	7,509	13	11	2	0.18	0.17	0.27	4
2001	103,333	95,222	85,513	9,709	20	19	1	0.21	0.22	0.10	4
2002	115,957	105,841	95,198	10,643	27	25	2	0.26	0.26	0.19	9
2003	228,807	176,414	158,053	18,361	30	27	3	0.17	0.17	0.16	22
2004*	124,520	112,252	100,636	11,616	10	10	0	0.09	0.10	0.00	10
Total	2,814,160	2,616,657	2,415,350	201,307	647	613	34				75

* current as of 30 June 2004

Figure 3. Rates of new diagnoses of HIV-1 infections, by gender, Army National Guard, 1994-2004.



* through June 2004

Table 4. New diagnoses of HIV-1 infections, by gender, civilian applicants for US military service, 1985/86-June 2004

Year	Total HIV tests	Total persons tested	Males tested	Females tested	Total HIV-1 positive	HIV-1 positive males	HIV-1 positive females	Overall per 1000 tested	Males per 1000 tested	Females per 1000 tested
1985/86	1,063,621	788,059	679,251	108,808	1,180	1,111	69	1.50	1.64	0.63
1987	918,908	550,032	473,784	76,248	747	695	52	1.36	1.47	0.68
1988	943,854	499,988	423,597	76,391	558	503	55	1.12	1.19	0.72
1989	633,652	497,676	419,070	78,606	507	465	42	1.02	1.11	0.53
1990	461,267	404,188	340,208	63,980	311	281	30	0.77	0.83	0.47
1991	434,816	376,179	319,346	56,833	274	245	29	0.73	0.77	0.51
1992	387,065	334,300	273,378	60,922	148	121	27	0.44	0.44	0.44
1993	363,299	307,744	250,423	57,321	132	111	21	0.43	0.44	0.37
1994	331,806	276,945	219,989	56,956	103	70	33	0.37	0.32	0.58
1995	287,566	217,223	172,215	45,008	105	84	21	0.48	0.49	0.47
1996	354,861	295,347	231,532	63,815	88	73	15	0.30	0.32	0.24
1997	355,611	290,379	229,671	60,708	88	70	18	0.30	0.30	0.30
1998	339,612	286,426	224,421	62,005	91	75	16	0.32	0.33	0.26
1999	366,192	308,948	241,996	66,952	96	79	17	0.31	0.33	0.25
2000	388,985	330,324	257,530	72,794	100	79	21	0.30	0.31	0.29
2001	413,133	345,237	272,020	73,217	108	88	20	0.31	0.32	0.27
2002	415,047	355,597	279,006	76,591	96	80	16	0.27	0.29	0.21
2003	361,566	312,078	250,009	62,069	88	74	14	0.28	0.30	0.23
2004*	174,625	146,316	117,036	29,280	43	38	5	0.29	0.32	0.17
Total	8,995,486	6,922,986	5,674,482	1,248,504	4,863	4,342	521			

* through 30 June 2004

Figure 4. Rates of new diagnoses of HIV-1 infections, by gender, civilian applicants for US military service, 1985/86-June 2004.



Table 5. New diagnoses of HIV-1 infections, by race/ethnicity, civilian applicants for military service, 1985/86 - June 2004

Year	Total HIV tests	Total persons tested	White non-hispanic persons tested	Black non-hispanic persons tested	Hispanic and others tested	Total HIV-1 (+)	White non-hispanic, HIV-1 (+)	Black non-hispanic, HIV-1 (+)	Hispanic and others HIV-1(+)	Overall per 1000 tested	White non-Hispanic per 1000 tested	Black non-hispanic per 1000 tested	Hispanic and others per 1000 tested
1985/86	1,063,621	788,059	604,018	144,723	39,318	1,180	506	590	84	1.50	0.84	4.08	2.14
1987	918,908	550,032	414,849	106,133	29,050	747	307	400	40	1.36	0.74	3.77	1.38
1988	943,854	499,988	370,561	101,207	28,220	558	187	336	35	1.12	0.50	3.32	1.24
1989	633,652	497,676	363,112	104,872	29,692	507	156	322	29	1.02	0.43	3.07	0.98
1990	461,267	404,188	302,583	75,711	25,894	311	113	173	25	0.77	0.37	2.29	0.97
1991	434,816	376,179	297,840	55,326	23,013	274	98	147	29	0.73	0.33	2.66	1.26
1992	387,065	334,300	257,668	55,258	21,374	148	48	92	8	0.44	0.19	1.66	0.37
1993	363,299	307,744	236,674	51,100	19,970	132	49	78	5	0.43	0.21	1.53	0.25
1994	331,806	276,945	205,031	51,162	20,752	103	23	76	4	0.37	0.11	1.49	0.19
1995	287,566	217,223	157,970	40,019	19,234	105	30	66	9	0.48	0.19	1.65	0.47
1996	354,861	295,347	210,118	56,577	28,652	88	21	63	4	0.30	0.10	1.11	0.14
1997	355,611	290,379	203,623	56,461	30,295	88	26	59	3	0.30	0.13	1.04	0.10
1998	339,612	286,426	201,489	54,397	30,540	91	20	62	9	0.32	0.10	1.14	0.29
1999	366,192	308,948	217,839	58,771	32,338	96	20	68	8	0.31	0.09	1.16	0.25
2000	388,985	330,324	235,404	63,723	31,197	100	13	82	5	0.30	0.06	1.29	0.16
2001	413,133	345,237	255,424	59,747	30,066	108	25	72	11	0.31	0.10	1.21	0.37
2002	415,047	355,597	268,633	57,320	29,644	96	27	61	8	0.27	0.10	1.06	0.27
2003	361,566	312,078	230,805	47,198	34,075	88	25	55	8	0.28	0.11	1.17	0.23
2004*	174,625	146,316	103,180	20,398	22,738	43	13	23	7	0.29	0.13	1.13	0.31
Total	8,995,486	6,922,986	5,136,821	1,260,103	526,062	4,863	1,707	2,825	331				

* through 30 June 2004

Figure 5. Rates of new diagnoses of HIV-1 infections, by race/ethnicity, civilian applicants for US military service, 1985/86-2004.

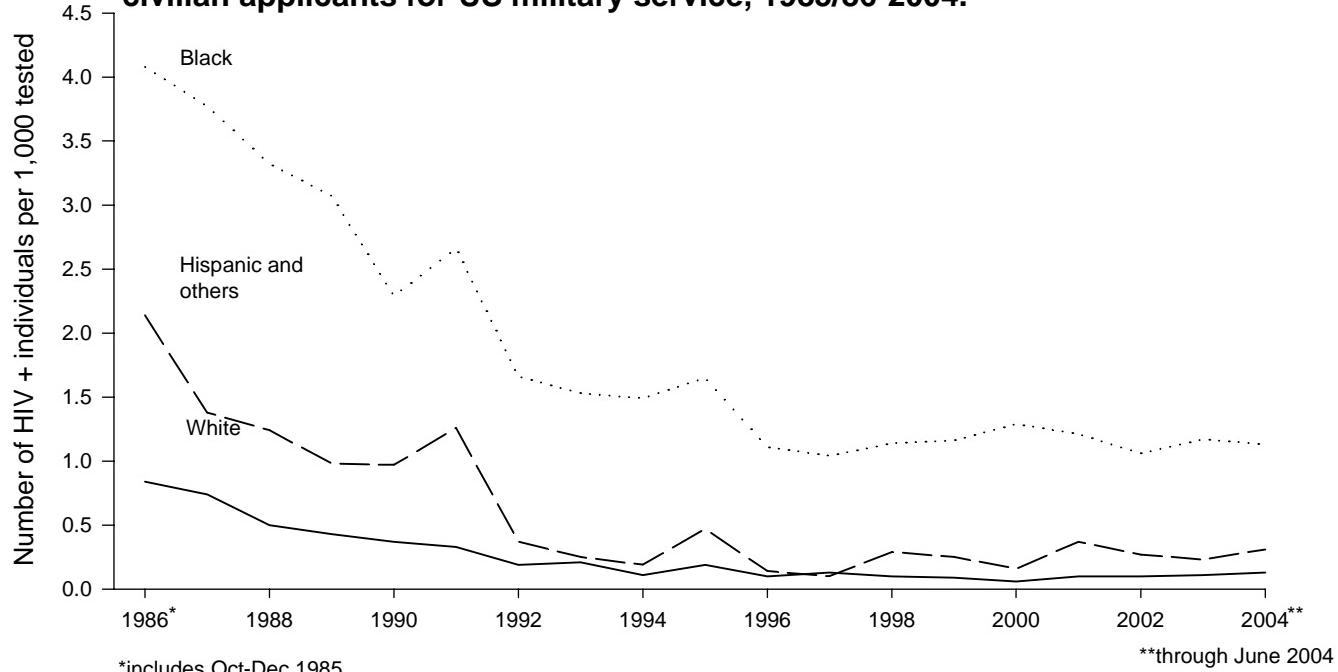


Table 6. HIV-1 tests, by indication, US Army, active component, Reserve, and National Guard, 2003

Test indication	Active	Reserve	National Guard	Total
Clinical (including sexually transmitted diseases)	28,893	2,536	3,231	34,660
Routine screening	288,606	68,232	75,989	432,827
Physical examination	66,304	63,141	112,181	241,626
Other/unknown	109,568	22,852	37,406	169,826
Total	493,371	156,761	228,807	878,939
Total soldiers tested	362,448	112,864	176,414	651,726
Number positive	60	49	30	139
Prevalence, HIV-1 (+) per 1000 tested	0.17	0.43	0.17	0.21

Completeness and Timeliness of Reporting of Hospitalized Notifiable Cases, Active Duty Servicemembers, US Army Medical Treatment Facilities, 1998–2003

U.S. Army medical activities are required to centrally report all occurrences of conditions specified in the tri-service consensus list of reportable medical events.^{1,2} The tri-service consensus list of reportable events also guides the notifiable events surveillance and reporting of all of the Services.³ Since 1994, the U.S. Army has conducted automated reporting of notifiable medical conditions for public health surveillance purposes through the Reportable Medical Events System (RMES). The RMES enables real-time surveillance across Army installations worldwide of conditions with public health and/or military operational importance.⁴

This report summarizes the completeness and timeliness of reporting of notifiable conditions that resulted in hospitalizations of active duty servicemembers in Army medical treatment facilities from 1998 through 2003.

Methods. All reports to the Army's Reportable Medical Events System (RMES) are incorporated in the Defense Medical Surveillance System (DMSS).^{2,3} Completeness of reporting is estimated by matching hospitalizations for conditions that are presumably reportable (based on ICD-9-CM coded discharge diagnoses) with confirmed reports to the US Army's Reportable Medical Events System (RMES). Timeliness of reporting is assessed by the time between the date of hospital discharge and the date of receipt of the matching confirmed report in the DMSS (cases reported prior to dates of hospitalization for the same conditions, i.e., after pre-hospitalization ambulatory visits, are excluded from the timeliness analysis).

Completeness of reporting, hospitalizations overall. During 2003, there were 300 hospitalizations of active duty service members at Army medical treatment facilities for conditions considered reportable. Of these, 171 (57%) were reported through RMES. The completeness of reporting of notifiable hospitalized cases overall has remained remarkably stable during the past five years (figure 1).

Completeness of reporting, by diagnosis. The reportable conditions that resulted in the most hospitalizations of servicemembers in 2003 were heat injuries (n=126), malaria (n=50), and influenza (n=46)—the completeness of reporting of these conditions were 60%, 90%, and 48%, respectively (table 1). In 2003 compared to recent years, there were significantly more hospitalized cases of malaria and influenza, but fewer hospitalizations for heat injuries, in U.S. Army hospitals (table 1).

Completeness of reporting, by location. In 2003, twenty-seven U.S. Army reporting sites had at least one reportable hospitalized case; however, there was significant variability across sites in numbers of reportable hospitalized cases. For example, thirteen sites had four or fewer—and five sites had more than 20—reportable cases each. There was also significant variability across sites in the number and completeness of reported cases. For example, four sites reported more than 20 cases each, and 7 sites reported 75% or more of their reportable cases (table 3).

Timeliness of reporting of hospitalized cases. Of all reported hospitalized cases in 2003, approximately one-third (33%) were reported within one week of hospital discharge, and approximately two-thirds (69%) were reported within one month. The timeliness of reporting in 2003 was generally similar to that in 2002 (figure 2).

Editorial comment. In general, the completeness of reporting of notifiable conditions at Army hospitals has been stable for the past five years. However, overall summaries of the completeness of reporting must be interpreted cautiously because they are heavily weighted by the experiences of a few installations in relation to a few conditions. For example, in 2003, three conditions—heat injury, malaria, and influenza—accounted for nearly three-fourths of all reportable cases, more than 80% of all reported cases, and more than 60% of all unreported

cases at U.S. Army hospitals. Also, three sites in the continental U.S. accounted for approximately half of all reportable cases and more than half (54%) of all reported cases from U.S. Army hospitals; moreover, one site accounted for 33% of all unreported cases overall. Clearly, the reporting experience of the U.S. Army overall may not reflect the experiences at specific installations or in relation to specific conditions.

In addition, the summary methods used for this report may underestimate the actual completeness of reporting because some of the ICD-9-CM codes used to identify presumably reportable conditions are not specific for the conditions of interest (i.e., the ICD-9-CM codes are used to document clinical states that are not reportable); and diagnoses reported on hospital discharge records may not be based on the same clinical criteria as required for a “confirmed”

reportable case. Nonetheless, monitoring of compliance with reporting requirements can provide information that may be useful and informative for local and overall military public health surveillance purposes.

*Analysis and report by Barbara E. Nagaraj, MPH,
Analysis Group, Army Medical Surveillance Activity.*

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2. Tri-service reportable events: guidelines and case definitions, version 1.0, July 1998.
3. Memorandum: Office of the Assistant Secretary of Defense (Health Affairs). November 6, 1998. Subject: Tri-service reportable events document.
4. Memorandum: Office of the Surgeon General. SGPS –PSP (40-5). Subject: Implementation of new medical surveillance system, April 1994.

Figure 1. Completeness of reporting of hospitalized cases of notifiable conditions, active duty servicemembers, US Army medical treatment facilities, 1998-2003.

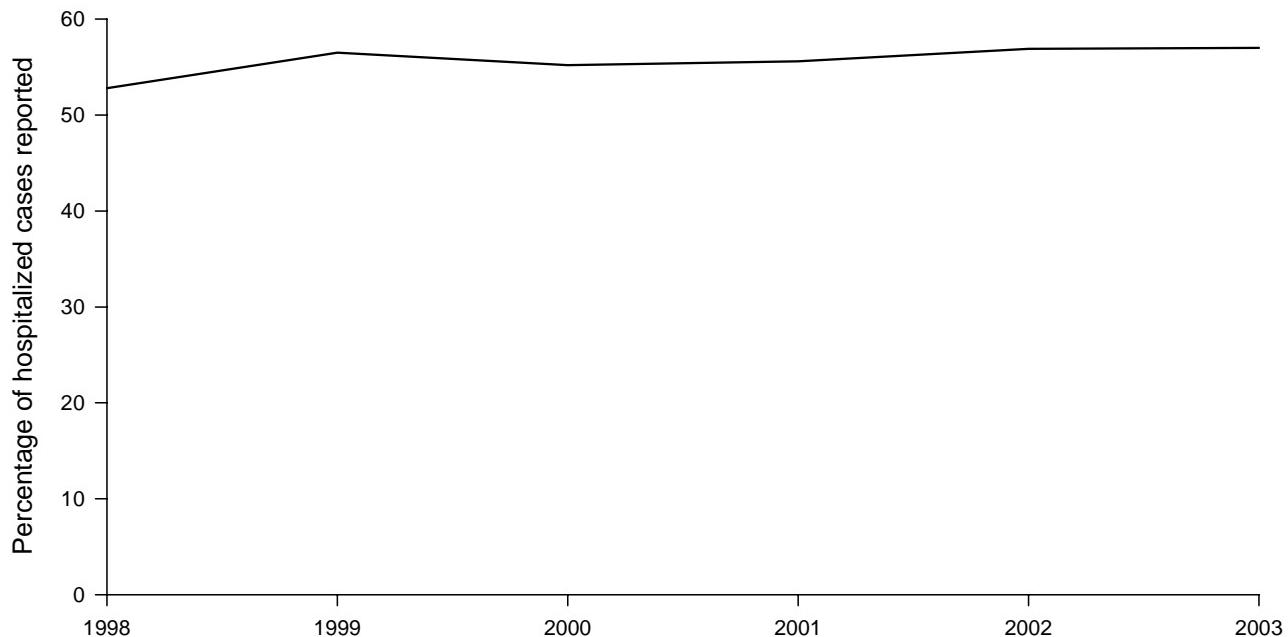


Table 1. Completeness¹ of reporting of hospitalized active duty cases through the Reportable Medical Events System, by disease, US Army medical facilities,² 2001-2003

Reportable condition ³	2001			2002			2003		
	Total hospitalized cases	RMES reported	%	Total hospitalized cases	RMES reported	%	Total hospitalized cases	RMES reported	%
Amebiasis	2	1	50.0	0	0	-	0	0	-
Brucellosis	0	0	-	0	0	-	2	2	100.0
Campylobacter	2	1	50.0	2	2	100.0	1	1	100.0
Carbon monoxide intox	5	2	40.0	2	0	0.0	1	0	0.0
Chemical agent exposure	2	0	0.0	1	0	0.0	0	0	-
Chlamydia	2	2	100.0	0	0	-	0	0	-
Coccidioidomycosis	3	1	33.3	4	2	50.0	0	0	-
Cold injury	3	2	66.7	6	1	16.7	1	1	100.0
Dengue fever	3	0	0.0	1	0	0.0	1	0	0.0
Giardiasis	1	1	100.0	0	0	-	0	0	-
Gonorrhea	7	4	57.1	8	4	50.0	1	0	0.0
H. influenzae, invasive	4	0	0.0	13	0	0.0	13	0	0.0
Hantavirus infection	0	0	-	0	0	-	1	1	100.0
Heat injury	168	106	63.1	138	89	64.5	126	76	60.3
Hemorrhagic fever	1	1	100.0	0	0	-	0	0	-
Hepatitis A	1	0	0.0	2	0	0.0	0	0	-
Hepatitis C	0	0	-	1	0	0.0	2	1	50.0
Influenza	12	0	0.0	6	0	0.0	46	22	47.8
Legionellosis	2	0	0.0	1	1	100.0	0	0	-
Leishmaniasis	1	1	100.0	1	0	0.0	3	0	0.0
Leprosy	0	0	-	2	2	100.0	0	0	-
Leptospirosis	2	1	50.0	3	3	100.0	3	3	100.0
Lyme disease	3	0	0.0	5	1	20.0	2	0	0.0
Malaria	37	29	78.4	35	35	100.0	50	45	90.0
Meningococcal disease	1	1	100.0	4	4	100.0	1	1	100.0
Mumps	2	0	0.0	0	0	-	2	1	50.0
Rheumatic fever, acute	1	0	0.0	1	0	0.0	1	0	0.0
Rocky Mtn spotted fever	0	0	-	0	0	-	1	0	0.0
Salmonellosis	6	3	50.0	5	1	20.0	6	2	33.3
Schistosomiasis	1	0	0.0	0	0	-	0	0	-
Shigellosis	1	0	0.0	1	0	0.0	0	0	-
Strept, group A, invasive	4	0	0.0	0	0	-	5	1	20.0
Syphilis	6	2	33.3	1	1	100.0	2	1	50.0
Toxic shock syndrome	1	0	0.0	2	0	0.0	1	0	0.0
Tuberculosis	11	4	36.4	12	3	25.0	6	2	33.3
Typhoid fever	2	1	50.0	0	0	-	0	0	-
Typhus fever	0	0	-	0	0	-	1	0	0.0
Vaccine, adverse event	1	0	0.0	2	0	0.0	2	1	50.0
Varicella, active duty only	22	15	68.2	17	8	47.1	19	10	52.6
Total	320	178	55.6	276	157	56.9	300	171	57.0

1. Completeness is the percent of hospitalized reportable cases that were reported through the Reportable Medical Events System (RMES).

2. Includes fixed military facilities and outsourced hospitalizations.

3. Reportable conditions with no hospitalizations from 2001 through 2003 are not included.

Figure 2. Timeliness of reporting of hospitalized cases of notifiable conditions among active duty servicemembers, through the Reportable Medical Events System, US Army, 1998-2003.

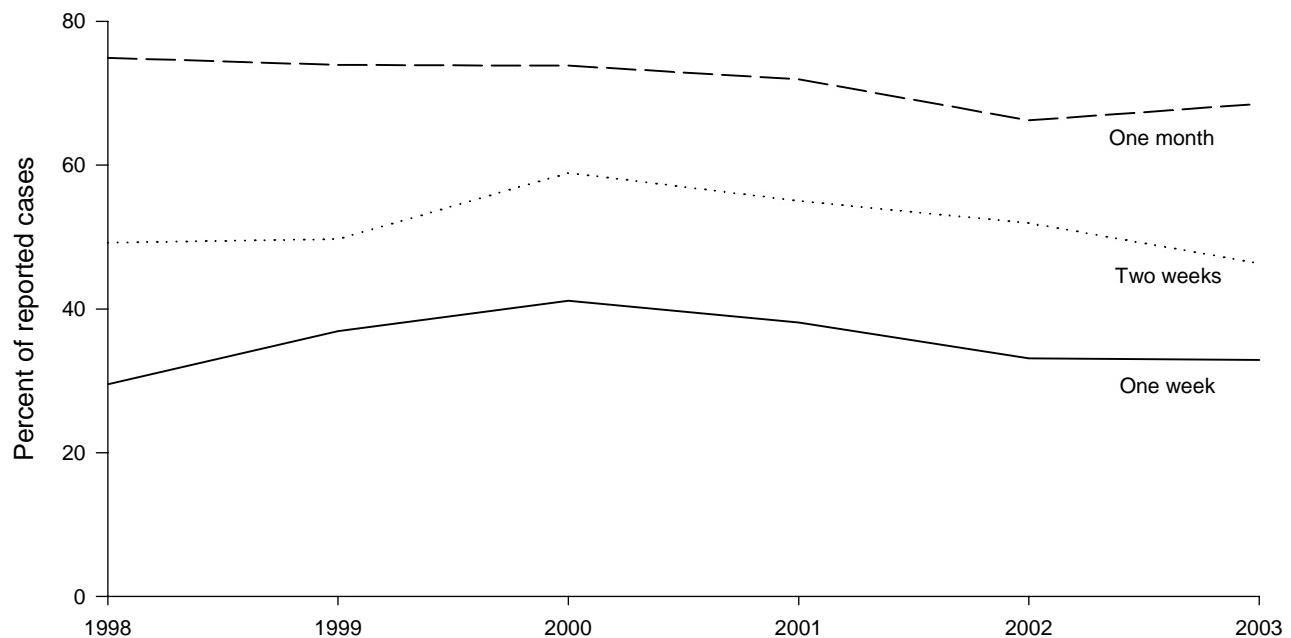


Table 2. Completeness¹ of reporting of hospitalized notifiable cases among active servicemembers, by medical treatment facility, US Army, 2001-2003

Location ²	2001			2002			2003		
	Hospitalized cases	Reported	RMES %	Hospitalized cases	Reported	RMES %	Hospitalized cases	Reported	RMES %
A	4	0	0.0	3	1	33.3	1	1	100.0
B	5	4	80.0	9	4	44.4	2	2	100.0
C	13	9	69.2	10	7	70.0	5	4	80.0
D	12	12	100.0	19	17	89.5	10	8	80.0
E	71	63	88.7	39	24	61.5	31	24	77.4
F	1	0	0.0	0	0	-	28	21	75.0
G	20	11	55.0	21	16	76.2	32	24	75.0
H	10	5	50.0	12	8	66.7	23	14	60.9
I	12	7	58.3	19	11	57.9	5	3	60.0
J	6	3	50.0	14	12	85.7	9	5	55.6
K	59	29	49.2	55	24	43.6	89	47	52.8
L	5	2	40.0	6	4	66.7	2	1	50.0
M	3	2	66.7	5	3	60.0	4	2	50.0
N	0	0	-	1	0	0.0	2	1	50.0
O	8	2	25.0	11	7	63.6	5	2	40.0
P	12	5	41.7	13	7	53.8	8	3	37.5
Q	4	1	25.0	3	2	66.7	3	1	33.3
R	1	0	0.0	1	1	100.0	3	1	33.3
S	8	3	37.5	4	0	0.0	4	1	25.0
T	28	8	28.6	9	4	44.4	17	4	23.5
U	6	3	50.0	2	2	100.0	5	1	20.0
V	1	0	0.0	7	2	28.6	5	1	20.0
W	1	0	0.0	1	0	0.0	1	0	0.0
X	13	4	30.8	3	0	0.0	1	0	0.0
Y	6	3	50.0	4	1	25.0	2	0	0.0
Z	9	1	11.1	2	0	0.0	2	0	0.0
AA	1	0	0.0	1	0	0.0	1	0	0.0
BB	1	1	100.0	2	0	0.0	0	0	-
Total	320	178	55.6	276	157	56.9	300	171	57.0

1. Completeness is the percent of hospitalized reportable cases that were reported through the Reportable Medical Events System (RMES).

2. Locations with no reportable hospitalizations from 2001 through 2003 are not included.

Completeness of Reporting of Hospitalized Notifiable Conditions Among Active Duty Servicemembers, U.S. Naval Medical Treatment Facilities, 1998–2003

Since 1998, the U.S. Navy has conducted automated reporting of notifiable medical events through the Navy Disease Reporting System (NDRS).^{1–3} Regional Navy Environmental and Preventive Medicine Units track and report cases of notifiable conditions to the Navy Environmental Health Center (NEHC). The NEHC transmits case reports to the Army Medical Surveillance Activity for integration into the Defense Medical Surveillance System (DMSS).³ This report summarizes the completeness and timeliness of reporting of notifiable conditions that resulted in hospitalizations of active duty servicemembers at Navy medical treatment facilities (NMTF) from 1998 to 2003.

Methods. For this summary, the completeness of reporting was estimated by matching hospitalizations for reportable conditions (based on ICD-9-CM coded discharge diagnoses) with cases reported through the Navy Disease Reporting System (NDRS). Timeliness

of reporting was calculated as the days between the date of hospital discharge and the date of receipt of the matching confirmed report in the DMSS (cases reported prior to hospitalizations for the same conditions, i.e., after pre-hospitalization ambulatory visits for the conditions, were excluded from analyses).

Completeness of reporting, hospitalizations overall. During 2003, there were 191 hospitalizations of active duty servicemembers at Naval medical treatment facilities for conditions considered reportable. Of these cases, 57 (30%) were reported through the NDRS. The completeness of reporting overall in 2003 was higher than in any year since 1999 (figure 1).

Completeness of reporting, by diagnosis. In 2003, heat injuries and malaria accounted for three-fourths of all reportable cases; more than four-fifths of all reported cases; and more than 70% of all unreported

Figure 1. Completeness of reporting of hospitalized cases of notifiable conditions, active duty servicemembers, US Navy medical treatment facilities, 1998–2003.

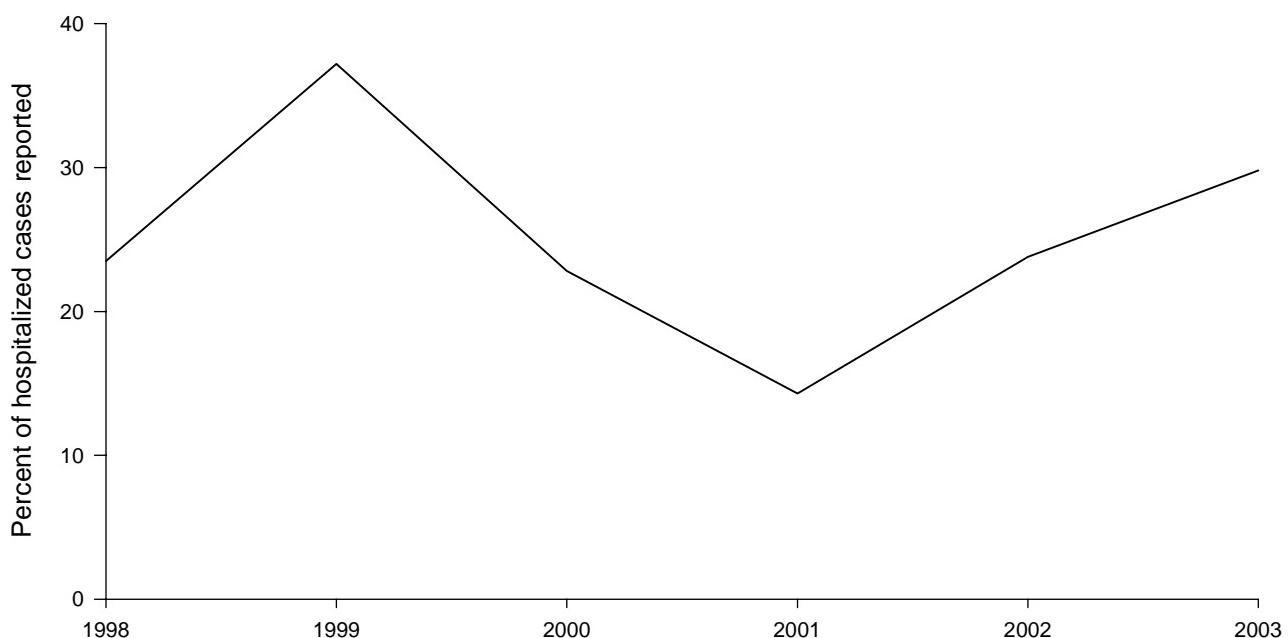


Table 1. Completeness¹ of reporting of hospitalized active duty cases through the Naval Disease Reporting System, by disease, Naval medical facilities², 2001-2003

Reportable condition ³	2001			2002			2003		
	Hospitalized cases	NDRS Reported	%	Hospitalized cases	NDRS Reported	%	Hospitalized cases	NDRS Reported	%
Amebiasis	0	0	-	0	0	-	0	0	-
Carbon monoxide poisoning	2	0	0.0	3	0	0.0	0	0	-
Chemical agent exposure	0	0	-	1	0	0.0	2	0	0.0
Coccidioidomycosis	2	1	50.0	3	3	100.0	1	1	100.0
Cold injury	1	0	0.0	1	0	0.0	0	0	-
Dengue fever	1	1	100.0	0	0	-	0	0	-
E. coli O157:H7	0	0	-	1	0	0.0	0	0	-
Encephalitis	0	0	-	1	0	0.0	2	0	0.0
Giardiasis	0	0	-	0	0	-	1	0	0.0
Gonorrhea	4	1	25.0	8	3	37.5	1	0	0.0
H. influenzae, invasive	1	0	0.0	11	0	0.0	7	0	0.0
Heat injury	81	6	7.4	98	23	23.5	96	16	16.7
Hepatitis A	1	0	0.0	3	0	0.0	1	0	0.0
Hepatitis C	0	0	-	0	0	-	2	0	0.0
Influenza	8	1	12.5	8	0	0.0	8	2	25.0
Legionellosis	2	0	0.0	0	0	-	0	0	-
Leptospirosis	0	0	-	0	0	-	1	0	0.0
Lyme disease	1	0	0.0	0	0	-	1	0	0.0
Malaria	7	0	0.0	5	3	60.0	47	32	68.1
Meningococcal disease	3	3	100.0	3	2	66.7	2	1	50.0
Rheumatic fever, acute	2	0	0.0	1	0	0.0	0	0	-
Rocky Mountain spotted fever	1	0	0.0	0	0	-	0	0	-
Salmonellosis	3	0	0.0	1	1	100.0	2	1	50.0
Shigellosis	1	0	0.0	1	1	100.0	0	0	-
Streptococcus, group A, invasive	3	0	0.0	11	3	27.3	2	0	0.0
Syphilis	2	1	50.0	1	0	0.0	2	0	0.0
Trichinosis	0	0	-	1	0	0.0	0	0	-
Tuberculosis	7	3	42.9	6	3	50.0	8	4	50.0
Typhoid fever	0	0	-	1	0	0.0	0	0	-
Typhus fever	1	0	0.0	0	0	-	0	0	-
Varicella, active duty only	34	7	20.6	12	1	8.3	5	0	0.0
Total	168	24	14.3	181	43	23.8	191	57	29.8

1. Completeness is the percent of hospitalized reportable cases that were reported through the Naval Disease Reporting System.

2. Includes fixed military facilities and outsourced hospitalizations

3. Reportable conditions with no hospitalizations from 2001 through 2003 are not included.

cases at Navy hospitals (table 1). Heat injuries alone accounted for nearly 60% all unreported cases at Navy hospitals (table 1).

Completeness of reporting, by location. There was significant variability in the number and completeness of reporting of presumably reportable hospitalized cases across Naval medical treatment facilities. In 2003, seventeen Navy hospitals had at least one reportable hospitalized case each; however, four hospitals accounted for nearly three-fourths (73%) of all reportable cases—and more than three-fourths (77%) of all unreported cases—Navywide (table 2). During 2003, seven Navy facilities reported any hospitalized cases; and one facility reported nearly half (47%) of all reported hospitalized cases Navywide (table 2).

Timeliness of reporting of hospitalized notifiable cases. During 2003, relatively few reports of notifiable cases were centrally reported within one

month of discharge of the affected servicemember from a Navy hospital (figure 2).

Editorial comment. The results of the current assessment suggest that, in general, the completeness of reporting through NDRS remains low. However, the results must be interpreted cautiously because the methods that are used for periodic assessments of the completeness of reporting may underestimate actual reporting completeness (as noted in the editorial comments included in the Army and Air Force reports elsewhere in this issue).

References

1. Tri-service reportable events: guidelines and case definitions, version 1.0, July 1998.
2. Navy Environmental Health Center. Naval disease reporting system (NDRS). Naval Medicine Surveillance Report (*NMSR*), 1998, 1:4,2.
3. Memorandum: Office of the Assistant Secretary of Defense (Health Affairs). November 6, 1998. Subject: Tri-service reportable events document.

Figure 2. Timeliness of reporting of hospitalized cases of notifiable conditions among active duty servicemembers, through the Naval Disease Reporting System, US Navy, 1998-2003.

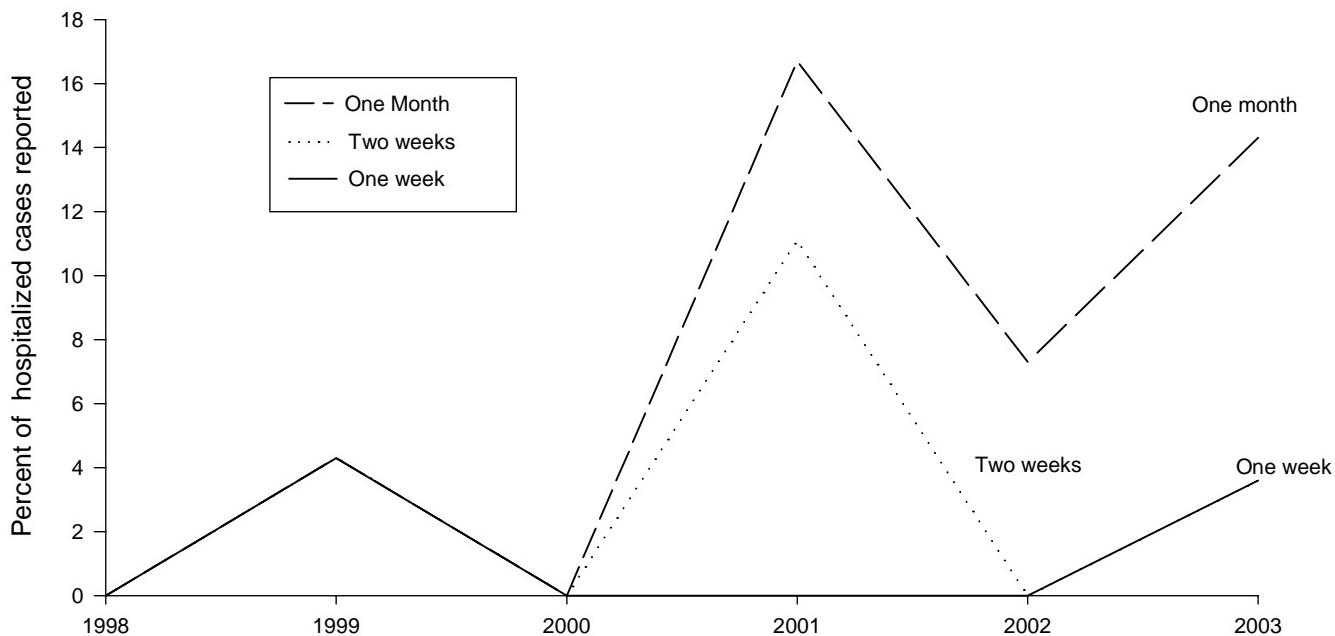


Table 2. Completeness¹ of reporting of hospitalized cases of notifiable conditions among active duty servicemembers, by US Navy medical treatment facility, 2001-2003

Location ²	2001			2002			2003		
	Hospitalized cases	NDRS reported	%	Hospitalized cases	NDRS reported	%	Hospitalized cases	NDRS reported	%
A	16	3	18.8	11	4	36.4	15	11	73.3
B	7	0	0.0	4	0	0.0	44	27	61.4
C	16	4	25.0	5	1	20.0	12	7	58.3
D	16	6	37.5	8	3	37.5	10	2	20.0
E	43	4	9.3	53	5	9.4	40	5	12.5
F	9	1	11.1	27	12	44.4	18	2	11.1
G	21	3	14.3	40	13	32.5	36	3	8.3
H	2	0	0.0	1	0	0.0	1	0	0.0
I	7	0	0.0	3	1	33.3	1	0	0.0
J	1	0	0.0	2	0	0.0	1	0	0.0
K	0	0	-	0	0	-	1	0	0.0
L	1	0	0.0	2	1	50.0	1	0	0.0
M	1	0	0.0	5	1	20.0	1	0	0.0
N	3	0	0.0	2	0	0.0	2	0	0.0
O	2	0	0.0	1	1	100.0	1	0	0.0
P	11	1	9.1	8	1	12.5	6	0	0.0
Q	4	0	0.0	1	0	0.0	1	0	0.0
R	1	1	100.0	0	0	-	0	0	-
S	3	0	0.0	3	0	0.0	0	0	-
T	3	1	33.3	0	0	-	0	0	-
U	0	0	-	4	0	0.0	0	0	-
V	1	0	0.0	0	0	-	0	0	-
W	0	0	-	1	0	0.0	0	0	-
Total	168	24	14.3	181	43	23.8	191	57	29.8

1. Completeness is the percent of hospitalized reportable cases that were reported through the Naval Disease Reporting System (NDRS).

2. Locations with no hospitalizations for reportable conditions from 2001 to 2003 are not included.

Completeness of Reporting of Hospitalized Notifiable Conditions Among Active Duty Servicemembers, U.S. Air Force Medical Treatment Facilities, 1998–2003

In 1998, the U.S. Air Force began automated reporting of notifiable medical conditions¹. Collection and entry of notifiable hospitalization case reports into the Air Force Reportable Events Surveillance System (AFRESS) are performed by public health offices at Air Force sites worldwide. Case reports are transmitted each month from individual sites to the Air Force Institute for Operational Health (AFIOH), Epidemiology Services Branch. Reports are then forwarded once a month to the Army Medical Surveillance Activity for integration into the Defense Medical Surveillance System (DMSS). This report summarizes the completeness of reporting of hospitalized cases of notifiable conditions among active duty servicemembers at Air Force medical treatment facilities (MTF) from 1998 to 2003.

Hospitalized cases of notifiable conditions were identified using ICD-9-CM coded discharge diagnoses. To estimate the completeness and timeliness of reporting, records of presumably reportable hospitalized cases were compared with confirmed reports submitted through the AFRESS.

Completeness of reporting, hospitalizations overall. During 2003, there were 55 hospitalizations of active service members at Air Force medical treatment facilities for conditions considered reportable. Seventeen (31%) of the cases were reported through the AFRESS. Nearly identical proportions of reportable cases were reported in 2003 and 2002 (figure 1).

Completeness of reporting, by diagnosis. In 2003, the notifiable conditions that resulted in the most hospitalizations of servicemembers, as well as the most reports to the AFRESS, were influenza (14 cases; 4 reports), malaria (10 cases; 7 reports), and heat injury (6 cases; 2 reports) (table 1).

Completeness of reporting, by location. In 2003, the number and completeness of reporting of reportable hospitalized cases varied significantly across Air Force MTFs. During the year, 25 sites had at least one reportable hospitalized case, but only two sites had more than three reportable cases (table 2). Six

Figure 1. Completeness of reporting of hospitalized cases of notifiable conditions, active duty servicemembers, US Air Force medical treatment facilities, 1998–2003.

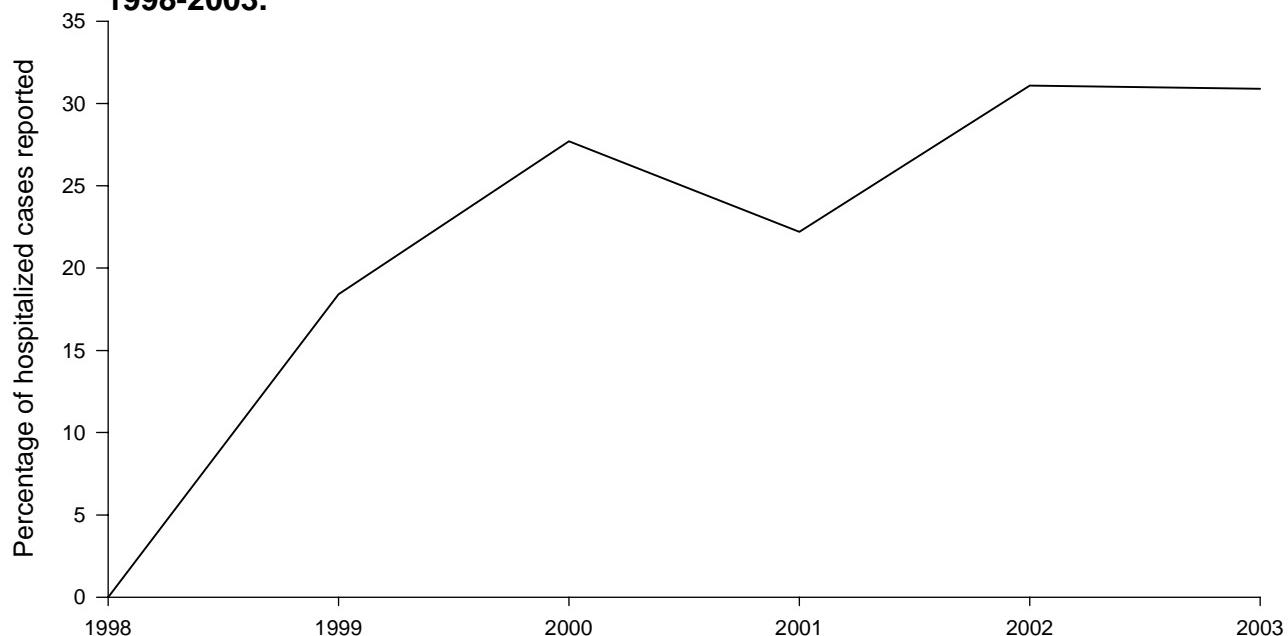


Table 1. Completeness¹ of reporting of hospitalized active duty cases through the Air Force Reportable Events Surveillance System, by disease, US Air Force medical facilities², 2001-2003

Reportable condition³	2001			2002			2003		
	Hospitalized cases	AFRESS reported	%	Hospitalized cases	AFRESS reported	%	Hospitalized cases	AFRESS reported	%
Amebiasis	0	0	-	1	0	0.0	2	0	0.0
Campylobacter	0	0	-	1	0	0.0	0	0	-
Chemical agent exposure	2	0	0.0	0	0	-	1	0	0.0
Chlamydia	0	0	-	0	0	-	1	1	100.0
Coccidioidomycosis	4	0	0.0	0	0	-	2	0	0.0
Cold injury	0	0	-	2	0	0.0	0	0	-
Giardiasis	1	0	0.0	0	0	-	0	0	-
Gonorrhea	2	2	100.0	4	2	50.0	0	0	-
H. influenzae, invasive	0	0	-	0	0	-	1	0	0.0
Heat injury	7	0	0.0	4	0	0.0	6	2	33.3
Hepatitis A	0	0	-	1	0	0.0	3	0	0.0
Influenza	11	3	27.3	7	3	42.9	14	4	28.6
Legionellosis	0	0	-	0	0	-	1	1	100.0
Leishmaniasis	0	0	-	1	0	0.0	0	0	-
Lyme disease	2	0	0.0	1	0	0.0	3	1	33.3
Malaria	3	2	66.7	4	4	100.0	10	7	70.0
Meningococcal disease	1	0	0.0	1	0	0.0	0	0	-
Pertussis	1	0	0.0	0	0	-	0	0	-
Rheumatic fever, acute	0	0	-	0	0	-	1	0	0.0
Rocky Mtn spotted fever	0	0	-	2	1	50.0	0	0	-
Salmonellosis	0	0	-	4	0	0.0	0	0	-
Shigellosis	0	0	-	1	1	100.0	1	0	0.0
Strept, group A, invasive	3	1	33.3	1	0	0.0	2	0	0.0
Syphilis	2	1	50.0	1	0	0.0	0	0	-
Syphilis congenital	0	0	-	0	0	-	1	0	0.0
Toxic shock syndrome	0	0	-	1	0	0.0	0	0	-
Tuberculosis	5	1	20.0	4	1	25.0	3	0	0.0
Urethritis, non-gonococcal	1	0	0.0	0	0	-	0	0	-
Vaccine, adverse event	0	0	-	0	0	-	1	0	0.0
Varicella, active duty	9	2	22.2	4	2	50.0	2	1	50.0
Total	54	12	22.2	45	14	31.1	55	17	30.9

1. Completeness is the percent of hospitalized reportable cases that were reported through the Air Force Reportable Events Surveillance System (AFRESS)

2. Includes fixed military facilities and outsourced hospitalizations

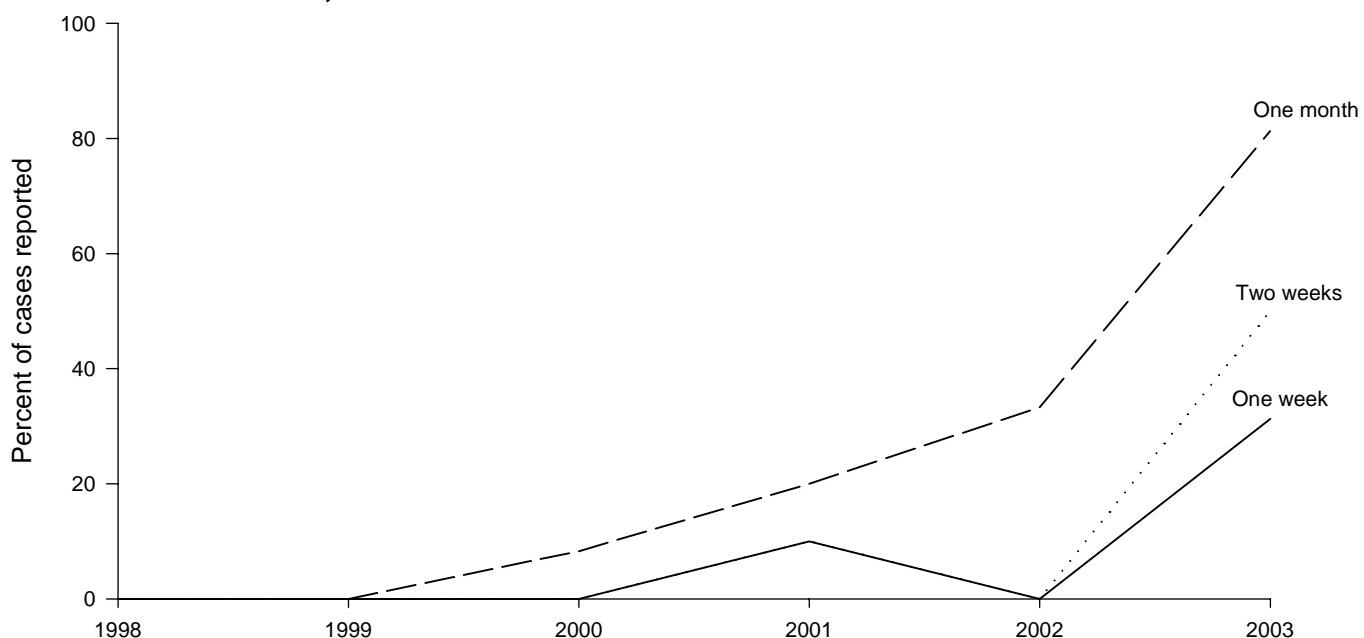
3. Reportable conditions with no hospitalizations from 2001 through 2003 are not included.

sites reported one hospitalized case each, and three sites reported more than one (table 2). Of interest, the three sites that reported multiple cases each accounted for more than half (53%) of all reported cases (table 2). Finally, only one site had more than three unreported cases during the year.

Timeliness of reporting of hospitalized cases. In 2003, approximately one-third of all case reports were submitted within one week; approximately half were submitted within two weeks; and approximately 80% were submitted within one month of the subject hospital discharges (figure 2). The timeliness of central reporting of cases from Air Force facilities was sharply better in 2003 than in prior years (figure 2).

Editorial comment. The overall completeness of reporting of hospitalized notifiable cases from U.S. Air Force medical facilities in 2003 was almost identical to that in 2002. In 2003, influenza and malaria accounted for more than 40% of all reportable cases and nearly two-thirds of all reported cases in the Air Force; and influenza alone accounted for more than one-fourth of all unreported cases. Specific emphasis on detecting and reporting active duty servicemembers who are hospitalized with influenza is warranted.

Figure 2. Timeliness of reporting of hospitalized cases of notifiable conditions through the Air Force Reportable Events Surveillance System, US Air Force, 1998-2003.



Of note, in 2003, notifiable hospitalized cases were widely and thinly distributed across Air Force medical treatment facilities. For example, while many facilities had at least one reportable case, only two facilities had more than three reportable cases—and only one facility had more than three unreported cases. This indicates that a broad based effort (rather than one focused on a few large hospitals) is necessary to significantly improve the completeness of reporting in the U.S. Air Force overall.

Finally, the results of this summary should be interpreted carefully. For example, the summary methods used for this report may underestimate the actual completeness of reporting because some of the ICD-9-CM codes used to identify presumably reportable conditions are not specific for the conditions of interest (i.e., the ICD-9-CM codes are used to document clinical states that are not reportable); and diagnoses reported on hospital discharge records may not be based on the same clinical criteria as required for a “confirmed” reportable case.

References

1. Tri-service reportable events: guidelines and case definitions, version 1.0, July 1998.

Table 2. Completeness¹ of reporting of hospitalized cases, of notifiable conditions among active duty servicemembers, by medical treatment facility, US Air Force, 2001-2003

Location ²	2001			2002			2003		
	Hospitalized cases	AFRESS reported	%	Hospitalized cases	AFRESS reported	%	Hospitalized cases	AFRESS reported	%
A	0	0	-	1	1	100.0	1	1	100.0
B	2	1	50.0	3	0	0.0	1	1	100.0
C	0	0	-	4	4	100.0	3	3	100.0
D	1	1	100.0	0	0	-	3	2	66.7
E	15	5	33.3	15	5	33.3	11	6	54.5
F	1	0	0.0	0	0	-	2	1	50.0
G	0	0	-	0	0	-	3	1	33.3
H	1	1	100.0	1	0	0.0	3	1	33.3
I	0	0	-	1	0	0.0	4	1	25.0
J	4	0	0.0	4	0	0.0	3	0	0.0
K	2	0	0.0	0	0	-	1	0	0.0
L	0	0	-	0	0	-	1	0	0.0
M	0	0	-	0	0	-	1	0	0.0
N	1	0	-	0	0	-	1	0	0.0
O	1	1	100.0	2	0	0.0	2	0	0.0
P	1	0	0.0	0	0	-	1	0	0.0
Q	0	0	-	0	0	-	3	0	0.0
R	0	0	-	0	0	-	1	0	0.0
S	0	0	-	0	0	-	1	0	0.0
T	1	0	0.0	0	0	-	2	0	0.0
U	0	0	-	1	0	0.0	1	0	0.0
V	0	0	-	1	0	0.0	2	0	0.0
W	1	0	0.0	1	1	100.0	1	0	0.0
X	1	0	0.0	0	0	-	2	0	0.0
Y	0	0	-	0	0	-	1	0	0.0
Z	0	0	-	1	0	0.0	0	0	-
AA	0	0	-	1	1	100.0	0	0	-
BB	0	0	-	1	0	0.0	0	0	-
CC	0	0	-	1	0	0.0	0	0	-
DD	3	0	0.0	0	0	-	0	0	-
EE	0	0	-	1	1	100.0	0	0	-
FF	0	0	-	1	1	100.0	0	0	-
GG	1	0	0.0	0	0	-	0	0	-
HH	2	1	50.0	1	0	0.0	0	0	-
II	2	0	0.0	0	0	-	0	0	-
JJ	10	0	0.0	2	0	0.0	0	0	-
KK	1	0	0.0	0	0	-	0	0	-
LL	0	0	-	1	0	0.0	0	0	-
MM	3	2	66.7	0	0	-	0	0	-
NN	0	0	-	1	0	0.0	0	0	-
Total	54	12	22.2	45	14	31.1	55	17	30.9

1. Completeness is the percent of hospitalized cases that were reported through the Air Force Reportable Events Surveillance System (AFRESS).

2. Locations with no reportable hospitalizations from 2001 through 2003 are not included.

Update: Pre- and Post-deployment Health Assessments, US Armed Forces, September 2002-July 2004

The June 2003 issue of the MSMR summarized the background of, rationale for, and applicable policies and guidelines related to pre- and post-deployment health assessments of deploying servicemembers.¹⁻¹⁰ Briefly, prior to deploying, the health of each servicemember is assessed to ensure his/her medical fitness and readiness for deployment; and at the time of redeployment, the health of each servicemember is again assessed to identify medical conditions and/or exposures of concern—to ensure timely and comprehensive evaluation and treatment.

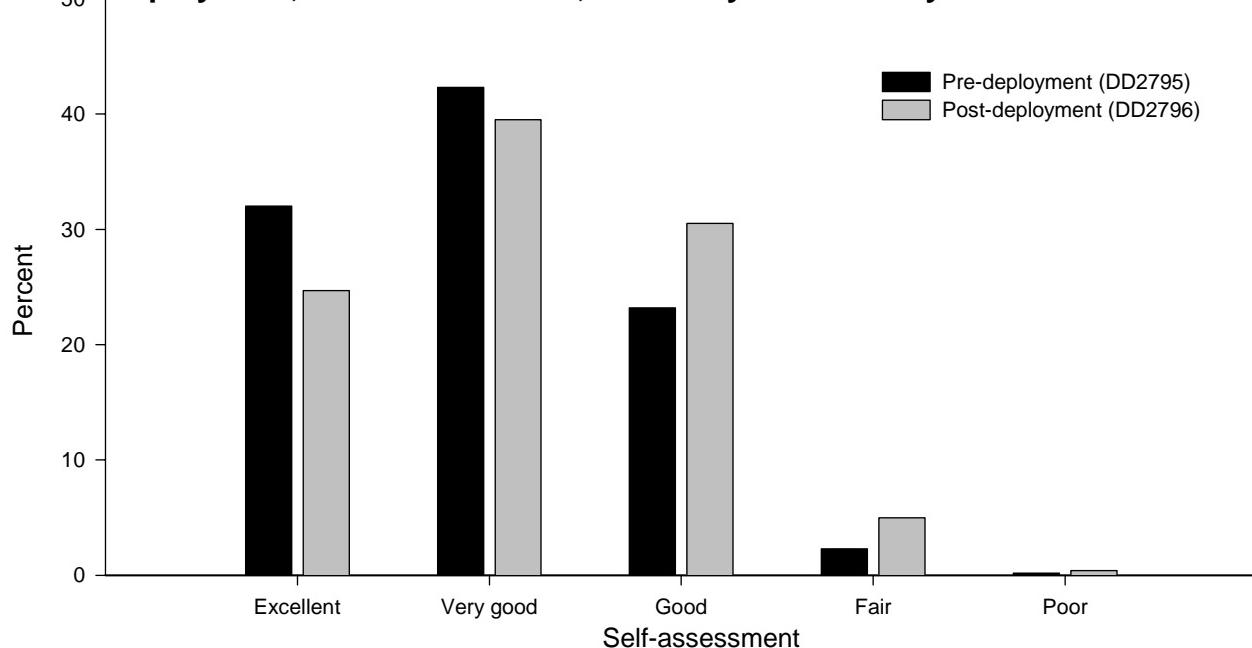
Completed pre- and post-deployment health assessment forms are routinely sent to the Army Medical Surveillance Activity (AMSA) where they are scanned, data entered, and archived in the Defense Medical Surveillance System (DMSS).¹¹ In the DMSS, data recorded on pre- and post-deployment forms are integrated with data that document demographic and military characteristics and medical experiences (e.g., hospitalizations, ambulatory visits, immunizations) of servicemembers.¹¹ The

continuously expanding integrated DMSS database can be used to monitor the health of servicemembers who participate in various deployments.¹¹⁻¹³

The overall success of deployment force health protection efforts depends in part on the completeness and quality of pre- and post-deployment health assessments. This report summarizes characteristics of servicemembers who completed pre-(since 1 September 2002) and post- (since 1 January 2003) deployment forms, responses to selected questions on pre- and post-deployment forms, and changes in responses of individuals from pre- to post-deployment.

Methods. For this update, the DMSS was searched to identify all pre- and post-deployment forms that were completed after 1 September 2002 (in order that assessments of servicemembers who deployed in October 2002 were included in analyses). For summary purposes, pre-deployment responses included all assessments (DD Form 2795) completed

Figure 1. Percent distributions of self-assessments of health status, pre- and post-deployment, US Armed Forces, 1 January 2003-31 July 2004.



after 1 September 2002, and post-deployment responses included all assessments (DD Form 2796) completed after 1 January 2003.

Results. From 1 September 2002 to 31 July 2003, 714,123 pre-deployment health assessment forms were completed at field sites, shipped to AMSA, and entered into the DMSS database—approximately 30% were completed in calendar year 2004 (table 1).

From 1 January to 31 July 2003, 610,103 post-deployment health assessments were completed at field sites, shipped to AMSA, and entered into the DMSS database—approximately 39% were completed in calendar year 2004 (table 1).

In general, the distributions of self-assessments of “overall health status” were similar among pre- and post-deployment form respondents (figure 1). Relatively more pre-deployment (32%)

than post-deployment (25%) respondents assessed their “overall health” as “excellent”; similar proportions of pre- and post-deployment form respondents assessed their “overall health” as “very good”; and both before and after deploying, fewer than 6% of respondents assessed their overall health as “fair” or “poor” (figure 1).

On post-deployment forms, approximately 21% of active and 37% of Reserve component respondents reported “medical/dental problems”; and approximately 4% of respondents overall reported “mental health concerns” (table 2). There was significant variability across services and components in percentages of post-deployment forms that reported that “referrals” were indicated (table 2). For example, only 6% of active component Navy members, but 26% of active and Reserve component soldiers, had indications for referrals (table 2).

Table 1. Total pre-deployment and post-deployment health assessments, by month and year, US Armed Forces

		Pre-deployment ¹		Post-deployment ²	
		No.	%	No.	%
Total		714,123	100.0	610,103	100.0
2002	September	11,156	1.6	-	-
	October	16,558	2.3	-	-
	November	20,032	2.8	-	-
	December	17,087	2.4	-	-
2003	January	69,148	9.7	5,759	0.9
	February	109,794	15.4	4,605	0.8
	March	69,643	9.8	6,271	1.0
	April	37,388	5.2	19,163	3.1
	May	12,806	1.8	88,392	14.5
	June	14,369	2.0	64,884	10.6
	July	17,872	2.5	50,502	8.3
	August	16,096	2.3	34,643	5.7
	September	12,527	1.8	31,776	5.2
	October	23,544	3.3	26,139	4.3
	November	19,232	2.7	20,084	3.3
	December	35,484	5.0	20,932	3.4
2004	January	66,530	9.3	37,757	6.2
	February	38,036	5.3	31,774	5.2
	March	21,965	3.1	65,660	10.8
	April	18,193	2.5	43,237	7.1
	May	26,076	3.7	16,793	2.8
	June	22,668	3.2	24,309	4.0
	July	17,919	2.5	17,423	2.9

1. Total pre-deployment assessments (DD form 2795) 1 January 2002-31 July 2004.

2. Total post-deployment assessments (DD form 2796) 1 January 2003-31 July 2004.

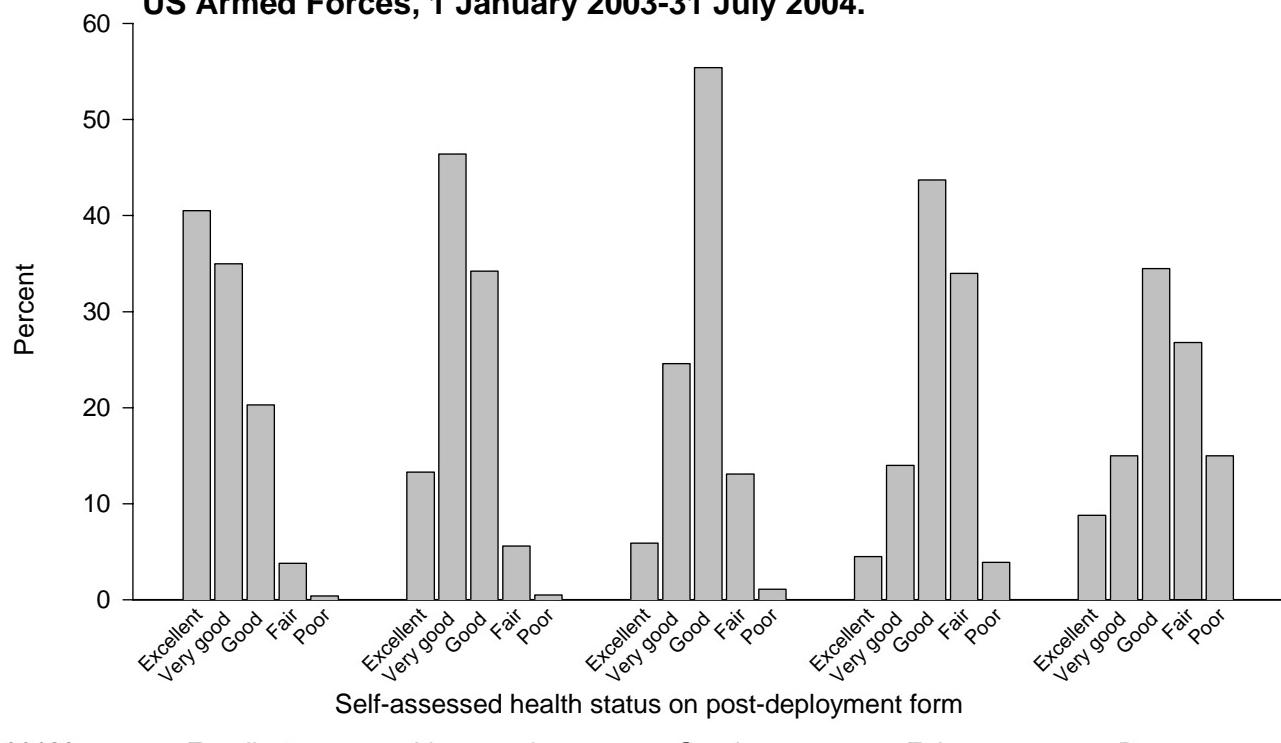
Among servicemembers ($n=325,237$) who completed both forms, nearly half (46%) chose the same descriptor of their “overall health status” before and after deploying (figures 2, 3). Of those who changed their health status assessments from pre- to post-deployment, more than three-fourths (76%) changed by a single category (on a five category scale) (figure 2,3); and of those who changed by more than one category, approximately 6-times more indicated a decrement ($n=35,526$) than an improvement ($n=5,796$) in overall health (figure 3).

Overall, 15.4% of all servicemembers who completed post-deployment forms reported deployment-related “exposure concerns.” The likelihood of reporting an “exposure concern” increased monotonically with age (table 3). In general, reservists and members of the Marine Corps and Army were more likely to report “exposure concerns” than their respective counterparts (table 3).

Editorial comment. In general, servicemembers who have been mobilized/deployed since September 2002 have assessed their overall health as “good” to “excellent.” The distributions of self-assessed health statuses are generally similar prior to and after returning from deploying; however, more servicemembers reported declines than improvements in their overall health from pre- to post-deployment. This is not surprising considering the extreme physical and psychological stresses associated with mobilization, overseas deployment, and harsh and dangerous living and working conditions.¹⁴ The deployment health assessment process is specifically designed to identify, assess, and follow-up as necessary all servicemembers with concerns regarding health and/or deployment-related exposures.

Overall, nearly one of every 6 servicemembers who completed post-deployment health assessments reported an “exposure concern.”

Figure 2. Self-assessed health status on post-deployment form, in relation to self-assessed health status pre-deployment, US Armed Forces, 1 January 2003-31 July 2004.



Pre-form response:

Excellent

Very good

Good

Fair

Poor

Of demographic factors, the strongest correlate of reporting an exposure concern was older age. The higher crude prevalences of exposure concerns among reservists are related, at least in part to differences in the age distributions of the active and Reserve components.

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Table 2. Responses to selected questions from post-deployment forms (DD2796) submitted since 1 January 2003, by service and component, US Armed Forces¹

Active component	Army	Navy	Air Force	Marines	Total
SMs with DD 2796 at AMSA	166,803	56,534	53,213	51,093	327,643
DD 2796 enhanced version ²	55%	1%	13%	10%	35%
General health ("fair" or "poor")	9%	5%	2%	6%	7%
Medical/dental problems	28%	12%	11%	18%	21%
Currently on profile	10%	1%	2%	3%	6%
Mental health concerns	5%	2%	1%	2%	3%
Exposure concerns	17%	5%	6%	12%	12%
Health concerns	15%	6%	5%	8%	10%
Referral indicated	26%	6%	10%	11%	18%
Medical followup after referral ³	95%	70%	88%	61%	84%
Post deployment serum ¹	92%	76%	92%	68%	87%
Reserve component					
SMs with DD 2796 at AMSA	134,819	10,175	21,922	12,138	179,054
DD 2796 enhanced version ²	49%	1%	8%	5%	40%
General health ("fair" or "poor")	11%	5%	3%	10%	9%
Medical/dental problems	40%	34%	17%	36%	37%
Currently on profile	15%	5%	2%	4%	12%
Mental health concerns	6%	2%	1%	3%	5%
Exposure concerns	22%	13%	11%	29%	21%
Health concerns	22%	18%	9%	24%	20%
Referral Indicated	26%	15%	13%	24%	23%
Medical followup after referral ³	82%	87%	64%	56%	78%
Post deployment serum ¹	92%	87%	71%	76%	89%

1. As of 27 August 2004.

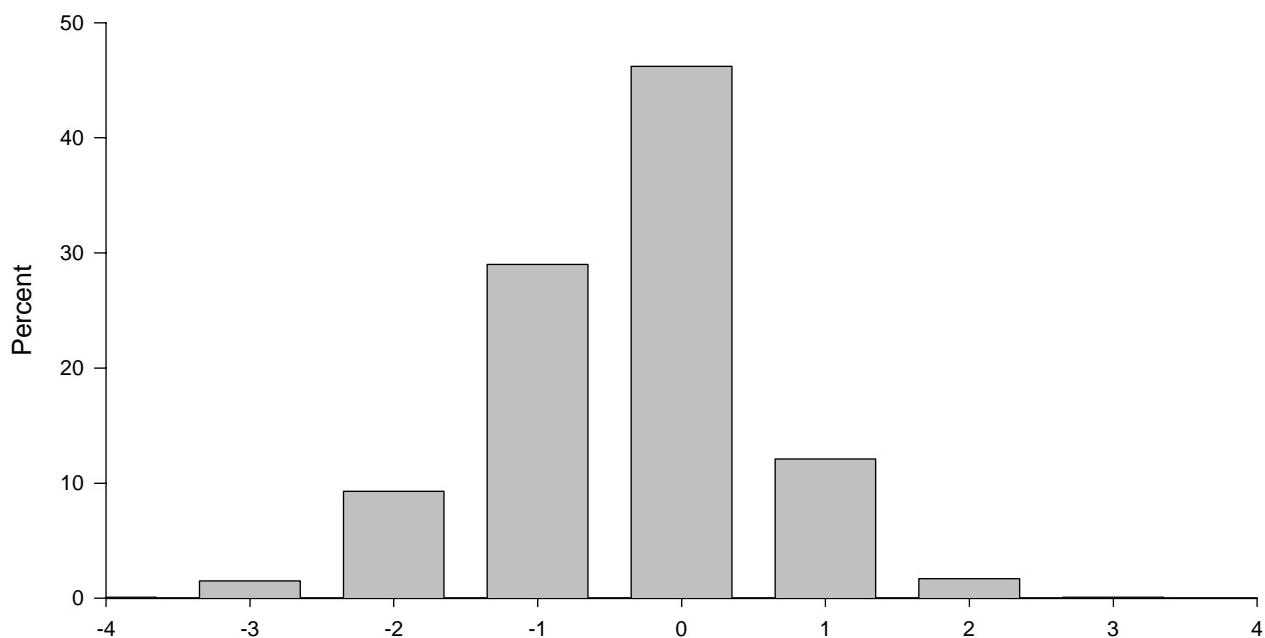
2. Only calculated for DD 2796 completed since 1 Jan 2003.

3. Any hospitalization or outpatient visit within 6 months after referral.

Note: Subgroup totals may not equal the overall total due to missing/unknown data

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Figure 3. Distribution of self-assessed health status changes from pre- to post-deployment form, US Armed Forces, 1 January 2003-31 July 2004.



Change in self-assessment of overall health status, pre- to post-deployment, calculated as: post deployment response - pre-deployment response, using the following scale for health status: 1= "poor"; 2="fair"; 3="good"; 4="very good"; and 5="excellent."

**Table 3. Deployment-related "exposure concerns"
reported on post-deployment health assessments,¹
US Armed Forces, January 2003-July 2004**

	Total respondents	Exposure concerns	No exposure concerns	% with exposure concerns
Total	500,097	77,124	415,207	15.4
Component				
Active	324,291	40,570	279,227	12.5
Reserve component	175,806	36,554	135,980	20.8
Service				
Army	297,043	58,066	234,587	19.5
Navy	66,438	4,156	61,188	6.3
Air Force	74,641	5,473	68,011	7.3
Marine Corps	61,975	9,429	51,421	15.2
Age (years)				
<20	17,294	1,333	15,753	7.7
20-29	264,644	35,047	226,039	13.2
30-39	139,207	24,267	112,695	17.4
>39	78,948	16,477	60,717	20.9
Gender				
Men	443,621	67,350	369,487	15.2
Women	56,433	9,771	45,681	17.3
Race/ethnicity				
Black	91,084	14,924	74,596	16.4
Hispanic	50,152	8,310	41,035	16.6
Other	1,094	180	895	16.5
White	325,732	49,012	271,925	15.0
Grade				
Enlisted	436,244	66,317	363,205	15.2
Officer	63,845	10,804	51,997	16.9

1. Post-deployment health assessments (DD Form 2796) with completion dates: 1 January 2003-31 July 2004.

Note: total does not reflect missing responses to "exposure concerns" or missing characteristics.

NOTICE OF CORRECTIONS

In issue 2 (March-April), pages 42-3, and issue 3 (May-June), pages 20-1, of volume 10 (2004) of the MSMR, the tables entitled "Sentinel reportable events for all beneficiaries at U.S. Army facilities, cumulative numbers for calendar years through ... 2003 and 2004" included counts of cases during current months rather than calendar years to date. The tables have been corrected in the on-line versions that are posted at the AMSA website (< amsa.army.mil >).

**Sentinel reportable events for all beneficiaries¹ at US Army medical facilities,
cumulative numbers² for calendar years through August 31, 2003 and 2004**

Reporting location	Number of reports all events ³		Food-borne								Vaccine Preventable					
			Campylo-bacter		Giardia		Salmonella		Shigella		Hepatitis A		Hepatitis B		Varicella	
	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
NORTH ATLANTIC																
Washington, DC Area	187	194	.	3	5	.	3	2	3	2	.	.	.	1	2	3
Aberdeen, MD	50	43	.	.	.	.	.	1	.	.	.	.	.	.	.	.
FT Belvoir, VA	166	180	9	6	.	2	10	2	3	1	.	2	.	.	.	1
FT Bragg, NC	1,300	1,375	7	7	.	.	15	35	18	1	.	.	.	.	2	.
FT Drum, NY	124	66	.	.	1	.	.	1	.	.	.	.	.	.	2	.
FT Eustis, VA	164	169	.	1	.	.	1	1	.	.	.	.	.	.	2	.
FT Knox, KY	183	165	2	3	.	4	4	1	.	.	.	.	.	1	1	.
FT Lee, VA	124	118	.	.	.	.	2	.	.	.	.	.	.	.	.	.
FT Meade, MD	76	139	.	1	.	1	.	.	1	.	.	.	.	.	.	.
West Point, NY	49	46	2	1	.	.	2	.	.	.	1	.	1	1	.	.
GREAT PLAINS																
FT Sam Houston, TX	162	223	.	.	.	1	4	3	.	.	.	.	.	.	.	2
FT Bliss, TX	198	261	1	1	3	3	2	3	1	9	.	.	1	.	1	.
FT Carson, CO	342	447	6	2	4	1	2	2	.	1	4	.	.	1	1	.
FT Hood, TX	1,063	931	7	8	.	.	19	8	74	43	1	.	.	1	.	.
FT Huachuca, AZ	51	74	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Leavenworth, KS	34	28	2	1	.	2	1	1	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	148	191	1	1	.	2	.	2	.	.	.	.	1	1	3	.
FT Polk, LA	154	141	1	2	.	.	2	7	.	.	.	.	.	1	.	.
FT Riley, KS	154	187	4	1	3	1	.	1	.	.	.	1	1	.	.	.
FT Sill, OK	155	151	.	.	.	1	.	3	.	3	.	.	.	.	.	.
SOUTHEAST																
FT Gordon, GA	223	158	.	1	1	.	2	3	.	.	.	.	1	1	.	.
FT Benning, GA	249	342	.	.	1	4	4	9	4	3	.	.	.	.	.	.
FT Campbell, KY	331	572	3	5	.	3	4	4	.	2	.	.	.	.	.	4
FT Jackson, SC	134	239	.	.	.	.	1	.	.	.	1	.	.	.	.	3
FT Rucker, AL	50	45	.	.	.	1	4	2	1	.	2	.	.	.	.	1
FT Stewart, GA	209	369	.	2	.	1	10	5	3	3	.	.	.	2	.	.
WESTERN																
FT Lewis, WA	400	372	1	2	6	1	4	3	3	2	.	.	.	1	.	.
FT Irwin, CA	38	46	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FT Wainwright, AK	91	143	.	1	.	.	.	2	.	.	.	1	.	1	.	.
OTHER LOCATIONS																
Hawaii	700	600	16	14	4	8	8	18	4	.	.	.	.	1	.	2
Europe	930	955	14	13	.	2	13	22	.	1	6	3	.	1	3	3
Korea	407	356	.	1	.	.	1	1	.	.	1	.	1	.	5	3
Total	8,646	9,326	76	77	28	38	118	142	115	71	16	7	6	14	22	22

1. Includes active duty servicemembers, dependents, and retirees.

2. Events reported by September 7, 2003 and 2004.

3. Seventy conditions specified by Tri-Service Reportable Events, Version 1.0, July 2000.

Note: Completeness and timeliness of reporting vary by facility.

Source: Army Reportable Medical Events System.

**(Cont'd) Sentinel reportable events for all beneficiaries¹ at US Army medical facilities,
cumulative numbers² for calendar years through August 31, 2003 and 2004**

Reporting location	Arthropod-borne				Sexually Transmitted								Environmental			
	Lyme Disease		Malaria		Chlamydia		Gonorrhea		Syphilis ⁴		Urethritis ⁵		Cold		Heat	
	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
NORTH ATLANTIC																
Washington, DC Area	2	4	2	.	119	84	15	9	3	3	.	.	1	29	.	9
Aberdeen, MD	2	.	.	.	28	41	11	.	.	.	.	.	9	.	.	.
FT Belvoir, VA	1	.	.	.	119	145	23	16	.	3	.	.	.	.	1	2
FT Bragg, NC	1	.	5	9	914	920	180	211	5	3	77	85	4	3	71	95
FT Drum, NY	.	.	.	4	95	54	21	3	.	.	.	.	4	1	.	.
FT Eustis, VA	.	2	.	.	127	134	29	16	1	1	.	.	.	.	.	3
FT Knox, KY	.	.	.	.	148	130	23	12	.	.	.	.	.	.	1	12
FT Lee, VA	.	1	.	.	101	98	21	17	.	.	.	.	.	.	.	1
FT Meade, MD	.	3	.	.	64	112	11	21	.	.	.	.	.	.	.	.
West Point, NY	20	13	.	.	14	25	1	1	.	.	.	.	.	1	7	4
GREAT PLAINS																
FT Sam Houston, TX	.	.	.	2	126	149	30	28	1	1	.	.	.	.	.	22
FT Bliss, TX	.	3	.	.	143	182	31	39	2	1	.	.	.	.	1	1
FT Carson, CO	.	.	.	1	245	361	33	35	1	1	33	38	2	.	1	.
FT Hood, TX	.	1	3	2	580	528	179	147	2	.	142	138	5	.	9	38
FT Huachuca, AZ	.	.	.	.	47	70	4	4	.	.	.	.	.	.	.	.
FT Leavenworth, KS	.	.	.	.	27	17	3	7	.	.	.	.	.	.	.	.
FT Leonard Wood, MO	.	.	.	1	125	136	12	35	1	.	.	.	2	1	3	7
FT Polk, LA	.	.	.	.	116	106	35	22	.	1	.	.	.	.	.	2
FT Riley, KS	.	1	.	.	134	123	7	31	.	.	.	.	.	5	4	22
FT Sill, OK	.	.	.	.	102	97	19	11	1	1	28	.	.	2	4	31
SOUTHEAST																
FT Gordon, GA	.	.	1	.	194	120	12	24	5	1	.	.	.	.	2	3
FT Benning, GA	.	.	19	2	135	168	62	83	.	.	.	.	.	.	23	72
FT Campbell, KY	1	.	1	2	242	391	69	68	1	1	.	.	2	.	7	65
FT Jackson, SC	.	.	.	1	92	156	15	22	.	1	.	.	4	6	21	47
FT Rucker, AL	.	.	.	.	27	33	9	6	.	.	1	.	.	4	1	.
FT Stewart, GA	.	.	1	.	98	193	46	84	.	3	35	17	.	.	14	38
WESTERN																
FT Lewis, WA	.	1	2	.	251	264	54	32	.	.	69	54	.	1	1	2
FT Irwin, CA	.	.	.	.	27	36	10	8	.	.	.	.	.	.	.	2
FT Wainwright, AK	.	.	1	.	67	71	9	11	.	.	.	.	14	54	.	.
OTHER LOCATIONS																
Hawaii	.	.	1	2	484	428	88	85	.	.	.	.	.	.	10	12
Europe	2	10	5	5	680	687	156	151	2	2	1	.	3	1	33	4
Korea	.	.	5	7	323	277	44	38	2	3	4	.	3	6	10	16
Total	29	39	46	38	5,994	6,336	1,262	1,277	27	26	390	332	53	110	227	511

4. Primary and secondary.

5. Urethritis, non-gonococcal (NGU).

Note: Completeness and timeliness of reporting vary by facility.

Source: Army Reportable Medical Events System.

Brucellosis in a Soldier Who Recently Returned from Iraq, July 2004

In July 2004, a 26 year old, active duty, US Army helicopter pilot returned to Germany after a 5-month deployment to Iraq. Approximately one week after his return, he experienced malaise and intermittent chills, fevers (to 103.9°F.), and profuse sweats. He attended sick call where laboratory studies and symptomatic treatment were begun.

On the second day following his sick call visit, his condition worsened. He was hospitalized at the Wuerzburg Army Hospital for one day. Two days after his hospitalization, he was re-admitted because of fever to 102.6°F. Laboratory studies revealed antibodies (titer: 1:1,280) to *B. abortus* and a blood isolate of *Brucella* spp (later identified as *B. melitensis*). The patient's clinical course and laboratory test results were consistent with a diagnosis of brucellosis.

The soldier denied contact in Iraq with infected animals or animal tissues. He observed the slaughter of a sheep but denied contact with its blood or tissue. He ate government rations almost exclusively and denied consuming untreated dairy products or water other than bottled. He denied contact with bodies of fresh water; bites of ticks, fleas, or mites; or overtly ill Iraqis.

The soldier reported that his uniforms and bed net were treated with permethrin. He slept in an air conditioned trailer and rarely used insect repellent (because insect activity seemed minimal). He took weekly chloroquine for malaria prophylaxis but missed his last weekly dose. He completed a 14-day course of primaquine after redeploying.

Editorial comment. Brucellosis is a zoonotic bacterial disease with worldwide distribution.¹ It is uncommon in the United States but endemic in many areas, particularly in the Mediterranean region, the Middle East (including Iraq^{2,3}), India, central Asia, Mexico, and Central and South America.¹

Brucellosis is generally transmitted to humans through ingestion, inhalation, or inoculation (through breaks in skin) of tissues or body fluids of infected animals. In turn, brucellosis is primarily an occupational disease of workers (e.g., farmers,

herders, abattoir workers, butchers, veterinarians) who have frequent close contact with animals (particularly cattle, pigs, goats, and sheep). Isolated cases and outbreaks often result from ingestions of unpasteurized milk or dairy products, particularly soft cheeses. Person-to-person transmission (e.g., breast feeding, sexual contact, tissue transplantation) is extremely rare.

Brucellosis is a systemic disease that can cause acute, recurrent, and/or chronic signs and symptoms including intermittent fevers of variable duration, headache, joint pains, muscle aches, weakness, fatigue, and weight loss.¹ Incubation times are extremely variable but generally range from five days to several months.¹ The initial clinical presentation is often an "influenza-like" illness that may include fevers, profuse sweats, headache, back pain, and generalized weakness. Infections of the central nervous system or endocardium are rare but can be severe.¹

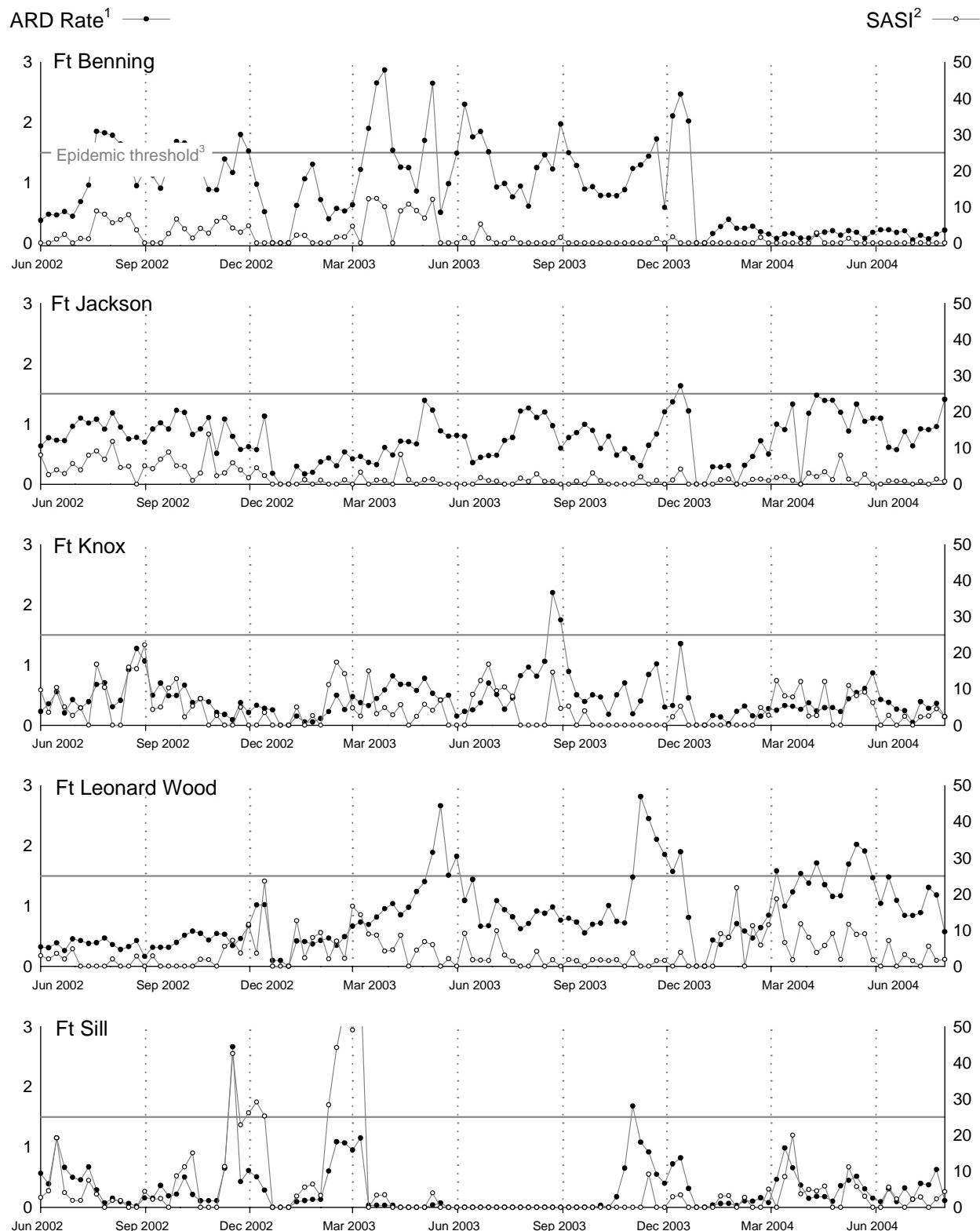
In general, while deployed, U.S. service members should not consume food or beverages from unapproved sources. In particular, they should not ingest unpasteurized/untreated milk or dairy products (e.g., cheese, ice cream). Individuals (e.g., veterinarians) who handle the carcasses, viscera, and/or body fluids of animals in endemic areas should wear clothing and gloves that protect exposed skin. Vaccination is an important tool for controlling brucellosis among domestic animals; however, no vaccine is available for human use.

Reported by Robert B. Andrews, DO, MPH, C, Preventive Medicine Division, US Army MEDDAC, Wuerzburg, Germany.

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**Acute respiratory disease (ARD) and streptococcal pharyngitis (SASI),
Army Basic Training Centers, by week through July 31, 2004**



¹ARD rate = cases per 100 trainees per week

²SASI (Strep ARD surveillance index) = (ARD rate) × (rate of Group A beta-hemolytic strep)

³ARD rate ≥ 1.5 or SASI ≥ 25.0 for 2 consecutive weeks indicates an "epidemic"

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